Nokia Customer Care

SERVICE MANUAL

RH-51/52, RH-67/68
Mobile Terminal

(Issue 1 NMP Part No: 9232529)
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(Issue 3 NMP Part No: 9236154)

Nokia 7610

Nokia 6670

Issue 3

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Amendment Record Sheet

Amendment No	Date	Inserted By	Comments
Issue 1	April 2004	M. Hautaniemi	
Issue 2	July 2004	M. Hautaniemi	Parts List updated.
			Service Tools updated.
			Baseband Troubleshooting and Manual Tuning Guide updated.
			RF Troubleshooting and Manual Tuning Guide updated.
			Schematics updated.
Issue 3	September 2004	M. Hautaniemi	RH-67/68 information added.

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Nokia RH-51/52, RH-67/68 Service Manual Structure

1 - General Information

2 - Parts Lists and Component Layout

3 - Service Software Instructions

4 - Service Tools

5 - Disassembly and Assembly Instructions

6(a) - Baseband Troubleshooting and Manual Tuning Guide

6(b) - RF Troubleshooting and Manual Tuning Guide

7 - System Module

8 - Schematics

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IMPORTANT

This document is intended for use by qualified service personnel only.

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Warnings and Cautions

Please refer to the *product's* user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

Warnings:

1. IF THE DEVICE CAN BE INSTALLED IN A VEHICLE, CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI-SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.

2. THE *product* MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES EG PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.

3. OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

Cautions:

1. Servicing and alignment must be undertaken by qualified personnel only.
2. Ensure all work is carried out at an anti-static workstation and that an anti-static wrist strap is worn.
3. Ensure solder, wire, or foreign matter does not enter the telephone as damage may result.
4. Use only approved components as specified in the parts list.
5. Ensure all components, modules screws and insulators are correctly re-fitted after servicing and alignment. Ensure all cables and wires are repositioned correctly.

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For your safety

QUALIFIED SERVICE
Only qualified personnel may install or repair phone equipment.

ACCESSORIES AND BATTERIES
Use only approved accessories and batteries. Do not connect incompatible products.

CONNECTING TO OTHER DEVICES
When connecting to any other device, read its user's guide for detailed safety instructions. Do not connect incompatible products.

ESD protection

Nokia requires that *product* service points have sufficient ESD protection (against static electricity) when servicing *products*.

Any product of which the covers are removed must be handled with ESD protection. The SIM card can be replaced without ESD protection if the product is otherwise ready for use.

To replace the covers ESD protection must be applied.

All electronic parts of the product are susceptible to ESD. Resistors, too, can be damaged by static electricity discharge.

All ESD sensitive parts must be packed in metallized protective bags during shipping and handling outside any ESD Protected Area (EPA).

Every repair action involving opening the product or handling the product components must be done under ESD protection.

ESD protected spare part packages MUST NOT be opened/closed out of an ESD Protected Area.

For more information and local requirements about ESD protection and ESD Protected Area, contact your local Nokia After Market Services representative.

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Battery information

Note that a new battery's full performance is achieved only after two or three complete charge and discharge cycles!

The battery can be charged and discharged hundreds of times but it will eventually wear out. When the operating time (talk-time and standby time) is noticeably shorter than normal, it is time to buy a new battery.

Use only batteries approved by the phone manufacturer and recharge the battery only with the chargers approved by the manufacturer. Unplug the charger when not in use. Do not leave the battery connected to a charger for longer than a week, since overcharging may shorten its lifetime. If left unused a fully charged battery will discharge itself over time.

Temperature extremes can affect the ability of your battery to charge.

For good operation times with Ni-Cd/NiMh batteries, discharge the battery from time to time by leaving the product switched on until it turns itself off (or by using the battery discharge facility of any approved accessory available for the product). Do not attempt to discharge the battery by any other means.

Use the battery only for its intended purpose.

Never use any charger or battery which is damaged.

Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object (coin, clip or pen) causes direct connection of the + and - terminals of the battery (metal strips on the battery) for example when you carry a spare battery in your pocket or purse. Short- circuiting the terminals may damage the battery or the connecting object.

Leaving the battery in hot or cold places, such as in a closed car in summer or winter conditions, will reduce the capacity and lifetime of the battery. Always try to keep the battery between 15°C and 25°C (59°F and 77°F). A phone with a hot or cold battery may temporarily not work, even when the battery is fully charged. Batteries' performance is particularly limited in temperatures well below freezing.

Do not dispose of batteries in a fire!

Dispose of batteries according to local regulations (e.g. recycling). Do not dispose as household waste.

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Care and maintenance

The product is a product of superior design and craftsmanship and should be treated with care. The suggestions below will help you to fulfil any warranty obligations and to enjoy this product for many years.

Keep the phone and all its parts and accessories out of the reach of small children.

Keep the phone dry. Precipitation, humidity and all types of liquids or moisture can contain minerals that will corrode electronic circuits.

Do not use or store the phone in dusty, dirty areas. Its moving parts can be damaged.

Do not store the phone in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.

Do not store the phone in cold areas. When it warms up (to its normal temperature), moisture can form inside, which may damage electronic circuit boards.

Do not drop, knock or shake the phone. Rough handling can break internal circuit boards.

Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the phone.

Do not paint the phone. Paint can clog the moving parts and prevent proper operation.

Use only the supplied or an approved replacement antenna. Unauthorised antennas, modifications or attachments could damage the phone and may violate regulations governing radio devices.

All of the above suggestions apply equally to the product, battery, charger or any accessory.

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Company Policy

Our policy is of continuous development; details of all technical modifications will be included with service bulletins.

While every endeavour has been made to ensure the accuracy of this document, some errors may exist. If any errors are found by the reader, NOKIA CORPORATION should be notified in writing.

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Title of the Document + Issue Number/Date of publication

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Page(s) and/or Figure(s) in error

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